

SYNGONANTHUS FLOCCOSUS Mold.

Plate 5

Herba rosulata erecta ca. 30 cm. alta; foliis caespitosis linearibus usque ad 1 cm. longis in cumulo floccoso densissimo albedo omnino occultis; vaginis gracillimis, arcte adpressis 2 cm. longis densissime albo-strigosis; pedunculis gracillimis flavidis 13--29 cm. altis tricostatis paulo tortis glabris; capitulis ovato-rotundatis 7--9 mm. latis densissime albo-villosis.

A rosulate herb, erect, to about 30 cm. tall; leaves all basal, cespitose, linear, to about 1 mm. long, almost completely hidden by a dense white cottony or woolly cushion of hair; sheaths very slender, very closely appressed to the peduncle, 2 cm. long, very densely white-strigose with mostly reflexed hairs; peduncles very slender, yellowish, 13--29 cm. long, 3-costate and shallowly 3-sulcate, slightly twisted, mostly glabrous; heads ovate-rotund, small, 7--9 mm. wide, very densely white-villous; involucre bracts white, oblanceolate, about 3 mm. long and 2 mm. wide, apically rounded and erose, glabrous, the lowermost smaller; receptacular bractlets numerous, narrow-lanceolate, very densely long-villous with white hair; for staminate floret characters, see accompanying illustration; pistillate florets not seen.

The type of this species was collected by R. M. Harley, S. J. Mayo, R. M. Storr, T. S. Santos, and R. S. Pinheiro (*Harley no. 19042*) near São Inácio, at an altitude of about 500 m., in the Serra do Açurua, approximately 42°44' W., 11°07' S., Bahia, Brazil, on February 25, 1977. The collectors note: "Erect tufted herb to ca. 20--25 cm. with dense fibrous roots and swollen white woolly base. Stems and leaves erect grey. Heads and involucre bracts white."

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ADDITIONAL NOTES ON THE GENUS *VITEX*. XVI

Harold N. Moldenke

VITEX Tourn.

Additional & emended bibliography: Roxb., Hort. Beng. 46 & 95. 1814; Roth, Nov. Pl. Sp., imp. 1, 316--317. 1821; Wall., Numer. List [47] & [48], nos. 1743--1760. 1829; Sweet, Hort. Brit., ed. 2, 416--418. 1830; Wall., Numer. List 86, nos. 1743/C--1755 (1831) and 215, nos. 6313 & 6314. 1832; Loud., Hort. Brit., ed. 2, 246 & 573. 1832; Piddington, Tab. View Gen. Char. Roxb. 106--107. 1836; G. Don in Sweet, Hort. Brit., ed. 3, 550--551 & 768. 1839; G. Don in Loud., Hort. Brit. Suppl. 2: 741. 1839; Jack, Calcut. Journ. Nat. Hist. 4: 40--42. 1843; G. Don in Loud., Hort. Brit. Suppl. [3]: 657 & 734. 1850; Beddome, Forest. Man. in Fl. Sylvat. S. India 2: clxxi. 1874; Kurz, Forest Fl. Brit. Burma 2: 252, 269--273, & 612. 1877; Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 159--160. 1880; Vidal y Soler, Sin. Fam. Gen. Pl. Leñ.

Filip. [Introd. Fl. For. Filip.] 1:201, 202, & 204--205 (1883) and 2 [Atlas]: 35--36, pl. 75, fig. A--C. 1883; C. B. Clarke in Hook. f., Fl. Brit. India 4: 583--588, 601, & 774. 1885; Vidal y Soler, Phan. Cuming. Philip. 15, 39, 44, 64, 134, & 135. 1885; Warb., Engl. Bot. Jahrb. 13: 428--429. 1891; Woodrow, Journ. Bomb. Nat. Hist. Soc. 5: 359. 1899; Gamble, Man. Indian Timb., ed. 2, imp. 1, 524 & 539--542. 1902; Talbot, Trees Bomb., ed. 2, 271. 1902; Dalla Torre & Harms, Gen. Siphonog., imp. 1, 432--433. 1904; Dalla Torre, Just Bot. Jahresber. 39 (1): 1319. 1913; Wangerin, Justs Bot. Jahresber. 39 (1): 848. 1913; Gamble, Man. Indian Timb., ed. 2, imp. 2, 524 & 539--542. 1922; Chiov., Fl. Somala 63 & 65. 1929; Bedevian, Illust. Polyglot. Dict. 617. 1936; Ainslie, Imp. Forest. Inst. Oxford Univ. Paper 7: 89. 1937; Kadambi, Indian Forest. 76: 18--30, 69--82, & 121--132. 1950; Metcalfe & Chalk, Anat. Dicot. 2: 1031--1038, 1040, & 1041, fig. 247 B & 248 B & H. 1950; Dalla Torre & Harms, Gen. Siphonog., imp. 2, 432--433. 1958; Novak, Vyssi Rostliny, ed. 1, 689, 696, 699, 929, & 990. 1961; Dalla Torre & Harms, Gen. Siphonog., imp. 3, 432--433. 1963; Neal, In Gard. Hawaii, ed. 2, 720, 721, & 727--730, fig. 277. 1965; Munir, Gard. Bull. Singapore 21: 334 & 337. 1966; Van Zindern Bakker, Palaeoecol. Afr. Surr. Isl. 3: 146. 1967; Boquiren, Mycologia 63: 954. 1971; Pierre-Noel, Nom. Polyglot. Pl. Hait. 471. 1971; Gamble, Man. Indian Timb., ed. 2, imp. 3, 524 & 539--542. 1972; Novak, Vyssi Rostliny, ed. 2, 2: 736, 737, 740, & 983. 1972; Roth, Nov. Pl. Sp., imp. 2, 316--317. 1975; Ortega U., Cienc. Naturaleza 17: 23. 1976; Chin, Gard. Bull. Singapore 30: 196. 1977; Arp, Trop. Gard. Gulf Coast 82. 1978; Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 40--42, 44, 47, 51--53. & 57. 1978; Wang, Act. Entomol. Sin. 21: 343--344. 1978; Hocking, Excerpt. Bot. A.33: 86 & 88. 1979; Lessani & Chariot-Panahi, Taxon 28: 636. 1979; Mold., Phytologia 44: 384--417, 474--498, 505, & 507--512. 1979; Rizzini, Trat. Fitogeog. Bras. 2: 302. 1979; Wang, Biol. Abstr. 68: 4667. 1979; Wherry, Fogg, & Wahl, Atlas Fl. Penna. 303. 1979; Mold., Phytologia 45: 40 & 343--345. 1980.

Junell (1934) and Novak (1961) place this genus in the *Lamiaceae*, and Dr. Carl Epling, noted specialist in this family of plants, shortly before his death, indicated to me that he agreed with this disposition of it. Hutchinson obviously would not so regard it since it is a pre-eminently arborescent genus.

Vidal y Soler (1885) assert that *Cuming* 1173 consists of a mixture of a *Vitex* sp. and *Vitis cumingiana* Turcz. in the *Vitaceae*.

VITEX ACUMINATA R. Br.

Additional bibliography: Warb., Engl. Bot. Jahrb. 13: 429. 1891; Mold., Phytologia 44: 223--224. 1979.

VITEX AGNUS-CASTUS L.

Additional & emended bibliography: Metcalfe & Chalk, Anat. Dicot. 2: 1031 & 1033. 1950; Novak, Vyssi Rostliny, ed. 2, 2: 737, 740, & 983. 1972; Arp, Trop. Gard. Gulf Coast 82. 1978; Mukher-

jee & Chanda, Trans. Bose Res. Inst. 41: 53. 1978; Mold., Phytologia 44: 385. 1979; Wherry, Fogg, & Wahl, Atlas Fl. Penna. 303. 1979.

Recent collectors have found this plant growing on roadside banks (in Texas) as a 2--3-foot shrub with purple flowers in July. Wherry and his associates (1979) report it as adventive in Chester County, Pennsylvania

Additional citations: TEXAS: Travis Co.: *Correll & Correll* 34288 (N). RUSSIA: Turkanskaya: *Nitikin & Ivanov s.n.* [28.06. 1975] (N).

VITEX AGNUS-CASTUS var. *PSEUDO-NEGUNDO* Hausskn.

Additional bibliography: Lessari & Chariot-Panahi, Taxon 28: 636. 1979; Mold., Phytologia 44: 339 & 344--347. 1979.

Lessari & Chariot-Panahi (1979) report the chromosome number of this taxon as $2n = 32$ and cite as the basis of the report *Sanei 60877* from 1300 m. altitude in Iran.

VITEX ALTISSIMA L. f.

Additional bibliography: Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 160. 1880; E. D. Merr., Sp. Blanc. 333. 1918; Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 52. 1978; Mold., Phytologia 44: 385 & 394. 1979.

VITEX ALTISSIMA f. *juv. ALATA* (Willd.) Mold.

Additional & emended bibliography: Roth, Nov. Pl. Sp., imp. 1, 316--317. 1821; Kurz, Forest Fl. Brit. Burma 2: 269, 272--273, & 612. 1877; Metcalfe & Chalk, Anat. Dicot. 2: 1036. 1950; Roth, Nov. Pl. Sp., imp. 2, 316--317. 1975; Mold., Phytologia 44: 385. 1979.

VITEX ALTISSIMA f. *SUBGLABRA* Thwaites

Additional bibliography: Mold., Phytologia 44: 354 & 358--360. 1979.

Additional citations: SRI LANKA: *Nooteboom & Huber 3162* (W--2819669).

VITEX AMBONIENSIS var. *SCHLECHTERI* Pieper

Additional & emended bibliography: Pieper, Engl. Bot. Jahrb. Beibl. 141: 69. 1928; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; H. N. & A. L. Mold., Pl. Life 2: 81. 1948; Mold., Phytologia 15: 89. 1967; Mold., Fifth Summ. 1: 252 (1971) and 2: 923. 1971.

VITEX APPUNI Mold.

Additional bibliography: López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979; Mold., Phytologia 44: 386--387 & 399. 1979.

Recent collectors have found this plant in flower in April and report the vernacular name, "guarataro". The corollas are said to have been "blue" on the Aristeguieta collection cited below.

Additional citations: VENEZUELA: Guárico: *Aristeguieta 7025* (N).

VITEX BENTHAMIANA Domin

Additional bibliography: Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 160. 1880; K. Schum. & Hollr., Fl. Kais. Wilhelmsl. 121. 1889; Mold., Phytologia 44: 390. 1979.

VITEX BREVILABIATA Ducke

Additional bibliography: Mold., Phytologia 44: 392. 1979.

Prance and his associates describe this plant as a tree, 15 m. tall, the trunk to 25 cm. in diameter, and the corolla-tube light-purple, the upper 2 "petals" [lobes] white, the 3 lower blue, with yellow pubescence on the lower "petal" [lobe], and encountered it in a forest on terra firme, flowering in September. Their collection seems to represent a form with only 3 leaflets per leaf.

Additional citations: BRAZIL: Amazonas: Prance, Berg, Bisby, Steward, Monteiro, & Ramos 18027 (N).

VITEX CALOTHYRSA Sandw.

Additional bibliography: López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979; Mold., Phytologia 44: 395. 1979.

VITEX CAPITATA Vahl

Additional synonymy: *Vitex capitata* Pers. ex G. Don in Loud., Hort. Brit. Suppl. [3]: 657. 1850.

Additional bibliography: G. Don in Loud., Hort. Brit. Suppl. [3]: 657. 1850; López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979; Mold., Phytologia 44: 387 & 396--399. 1979.

Recent collectors have found this plant growing at 30 m. altitude, in flower in April. The corollas are said to have been "blue" on *Aristeguieta* 5283.

Additional citations: VENEZUELA: Bolivar: *Aristeguieta* 5283 (N). Sucre: Steyermark, Carreño Espinoza, & Manara 107840 (N).

VITEX COFASSUS Reinw.

Additional bibliography: Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 160. 1880; Mold., Phytologia 44: 401--405. 1979.

Schumann & Hollrung (1889) cite only *Hollrung* 505. Schumann & Lauterbach (1900) cite *Hellwig* 196 & 446, *Hollrung* 505, and *Bamler* 97, all from New Guinea, flowering there from January to March. They record the vernacular name, "ganaula", and assert that the wood is used to make boat-rudders and in house construction there.

Canfield describes the species as a tree, 10 m. tall, the corollas "lavender" in color, and the fruit red to dark-blue, and encountered it as "occasional" in burned-over fields on volcanic clay soil, at 50 m. altitude, in flower and fruit in April, growing in association with *Pandanus*, *Macaranga*, *Scleria*, *Thelypteris*, and *Cordyline*.

Additional citations: PALAU ISLANDS: Koror: Canfield 739 (W--2881433); Emmons 21 (W--2881276).

VITEX COLUMBIENSIS Pittier

Additional bibliography: López-Palacios, *Revist. Fac. Farm. Univ. Andes* 20: 33. 1979; Mold., *Phytologia* 44: 405--406. 1979.

VITEX COMPRESSA Turcz.

Additional bibliography: López-Palacios, *Revist. Fac. Farm. Univ. Andes* 20: 33. 1979; Mold., *Phytologia* 44: 406--407 & 414. 1979.

Recent collectors refer to this plant as a tree, 12 m. tall, and have found it growing on rocky soil in mountain savanna forests and in high forests, at 473 m. altitude, flowering in April and December.

Additional citations: VENEZUELA: Bolívar: *Aristeguieta* 5215 (N). SURINAM: *Sang LBB.16266* (N).

VITEX COOPERI Standl.

Additional bibliography: Mold., *Phytologia* 44: 408--409. 1979.

Croat refers to this species as a tree, 12 m. tall, the corollas "blue", and the immature fruit green, and found it in flower and fruit in August.

Additional citations: HONDURAS: Atlántida: *Croat* 42679 (W--2846413). COSTA RICA: Heredia: *Hartshorn* 932 (Z).

VITEX CYMOSA Bert.

Additional bibliography: Mukherjee & Chanda, *Trans. Bose Res. Inst.* 41: 40 & 52. 1978; López-Palacios, *Revist. Fac. Farm. Univ. Andes* 20: 33. 1979; Mold., *Phytologia* 44: 410--412, 485, & 492. 1979.

Beck describes this plant as a tree, 8--10 m. tall, and encountered it on wet savannas and in chaparral converted to cattle raising land, at 220 m. altitude; the corollas were "blue" on his no. 2559.

Additional citations: BOLIVIA: El Beni: *S. G. Beck* 2559 (Ld), 2559a (Ld).

VITEX DIVARICATA Sw.

Additional synonymy: *Vitex multiflora* Sw. ex Pierre-Noel, *Nom. Polyglot. Hait.* 471, in syn. 1971 [not *V. multiflora* Miq., 1844].

Additional bibliography: Pierre-Noel, *Nom. Polyglot. Pl. Hait.* 471. 1971; Mukherjee & Chanda, *Trans. Bose Res. Inst.* 41: 52. 1978; López-Palacios, *Revist. Fac. Farm. Univ. Andes* 20: 33. 1979; Mold., *Phytologia* 44: 409, 413--415, & 475. 1979.

Pierre-Noel (1971) lists the following vernacular names for this plant: "bois lézard", "fiddlewood", "black fiddlewood", "higüerillo", "bois d'agoutis", "manioc à goutis", "palo de pendulá", "pendulá", "pendulo blanco", "roble guayo", "roble de olor", "timber fiddlewood", and "totumillo".

VITEX DONIANA Sweet

Additional bibliography: G. Don in Loud., *Hort. Brit. Suppl.* [3]: 657. 1850; Ainslie, *Imp. Forest. Inst. Oxford Univ. Paper* 7: 89.

1937; Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 52. 1978; Mold., Phytologia 44: 474--480. 1979.

VITEX DUCKEI Huber

Additional bibliography: Mold., Phytologia 44: 480--481. 1979.

Further study indicates that the *Ducke s.n.* [São Gabriel, Feb. 16, 1936; Herb. Rio de Janeiro 35667], cited by me as *V. duckei* in 1955, more likely represents *V. klugii* Mold.

VITEX EXCELSA Mold.

Additional bibliography: Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 40. 1978; Mold., Phytologia 44: 482. 1979.

VITEX FLAVENS H.B.K.

Additional bibliography: Mukherjee & Chanda, Trans. Bose Res. Inst. 41: 52. 1978; López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979; Mold., Phytologia 44: 484--485 & 492. 1979.

VITEX FLORIDULA Duchass. & Walp.

Additional bibliography: Pittier, Contrib. U. S. Nat. Herb. 20: 484. 1922; Mold., Phytologia 44: 485--486. 1979.

VITEX GARDNERIANA Schau.

Additional bibliography: Mold., Phytologia 44: 488--489. 1979; Rizzini, Trat. Fitogeog. Bras. 2: 302. 1979.

VITEX GIGANTEA H.B.K.

Additional bibliography: López-Palacios, Revist. Fac. Farm. Univ. Andes 20: 33. 1979; Mold., Phytologia 44: 492--493. 1979.

VITEX GLABRATA R. Br.

Additional bibliography: Mold., Phytologia 44: 493--498. 1979.

It would appear that, in general, typical *V. glabrata* has the leaflets usually 3 in number, rounder, and more glabrate, and the corymbs fewer-flowered, loose, with dichotomous axillary cymes. In the very similar f. *bombacifolia* the leaflets are usually 5 in number, larger and broader -- well exemplified by "*Vitex n. 18*, Herb. Ind. or. H.f. & T." In f. *pallida* the leaflets are smaller, more hairy, and the peduncles shorter -- well exemplified by "*Vitex n. 10*, Herb. Ind. or. H.f. & T."

Clarke (1885) comments that "The typical *V. glabrata*....has leaves usually 3-foliolate and rounder more glabrate leaflets and fewer-fld. corymbs than the Indian tree; but some of the examples of *V. Cunninghamii* appear identical with Silhet specimens. The typical *V. bombacifolia*, Wallich....has the leaflets mostly 5, large and broad; *V. pallida*, Wallich....has smaller, more hairy leaflets, and short peduncles."

VITEX GLABRATA f. *BOMBACIFOLIA* (Wall.) Mold.

Additional bibliography: Mold., Phytologia 44: 498. 1979.

Recent collectors describe this plant as a tree, 43 feet tall, the trunk 2 feet in girth at breast height, the wood hard and dur-

able, and have found the tree in flower in May. Griffith (1854) found it in cultivation at Mergui, in southern Burma, while Voigt (1845) reports it in cultivation at Calcutta, in West Bengal, India.

Griffith's *V. elegans* is based on a specimen "In horto meo, beato Mergui: March, 1835" and he provides a remarkably detailed description of the taxon. *Vitex bombacifolia* is based on Wallich 1749/1 cultivated in the Calcutta Botanical Garden, 1749/2 from Tagtomen on the Irawaddi River, collected in 1826, and possibly 1749/3 from Melhing. It should be noted in this connection that Wallich's no. 1749D [on p. 86 of his work] is identified as *V. leucoxydon* L. f., as are also nos. 1749E and 1749F.

The *Béjaud 519*, distributed as and previously cited by me as *f. bombacifolia*, actually represents var. *poilanei* Mold.

Additional citations: BURMA: Tenasserim: Helfer 6062 (Pd). BANGLADESH: Majumder & Islam MADw.24522 (Ws, Ws). CULTIVATED: India: Herb. Hort. Bot. Calcutt. s.n. (Pd).

VITEX GLABRATA f. *PALLIDA* (Wall.) Mold., Phytologia 44: 329. 1979.

Synonymy: *Vitex pallida* Wall., Numer. List [48], no. 1749, hyponym. 1829; C. B. Clarke in Hook. f., Fl. Brit. India 4: 588, in obs. 1885.

Bibliography: Wall., Numer. List [48], no. 1751. 1829; C. B. Clarke in Hook. f., Fl. Brit. India 4: 588. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1214. 1895; Mold., Prelim. Alph. List Inv. Names 51. 1940; Mold., Alph. List Inv. Names 54. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 1214 (1946) and imp. 3, 2: 1214. 1960; Mold., Résumé 387. 1969; Mold., Fifth Symm. 2: 725. 1971; Mold., Phytologia 44: 329. 1979.

Haec forma a forma typica speciei foliolis minoribus pubescentioribus pedunculis brevioribus recedit.

This form, characterized by its smaller more hairy leaflets and short peduncles, is typified by Wallich 1751 from Martaban in Lower Burma. Clarke (1885) asserts that it is well exemplified by "*Vitex n. 10*, Herb. Ind. or. H.f. & T."

VITEX GLABRATA var. *POILANEI* Mold.

Additional bibliography: Mold., Phytologia 15: 245. 1967; Mold., Fifth Summ. 1: 303 (1971) and 2: 925. 1971.

The *Béjaud 519*, cited below, has previously been regarded as typical *V. glabrata* R. Br. or as its *f. bombacifolia* (Wall.) Mold.

Additional citations: CAMBODIA: *Béjaud 519* (N).

VITEX GODERDZICA Tsagareli, Bull. Acad. Sci. Georgian SSR 78: 383--384. 1975.

Synonymy: *Vitex goderdzica* Tsagareli, Bull. Acad. Sci. Georgian SSR 78: [381], sphalm. 1975.

Bibliography: Tsagareli, Bull. Acad. Sci. Georgian SSR 78: 381-384. 1975; "H. R.". Biol. Abstr. 61: 2221. 1976; Anon., Biol. Ab-

str. 61: ACI.733. 1976.

Illustrations: Tsagareli, Bull. Acad. Sci. Georgian SSR 78: [381] & 382. 1975.

This fossil species has been described from the Goderdzi flora series, Miocene-Pliocene in age, of South Georgia, Russia. Its leaves closely resemble those of modern *V. negundo* var. *cannabifolia* (Sieb. & Zucc.) Hand.-Mazz. The author has also compared it with *V. pentamera* Engelhardt and *V. paucidenticulata* Kutuzkina.

VITEX GOLUNGENSIS J. G. Baker

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 317 & 330. 1900; Mold., Phytologia 15: 245. 1967; Mold., Fifth Summ. 1: 245 (1971) and 2: 716 & 925. 1971.

The type of this species, *Welwitsch 5635* in the British Museum herbarium was photographed there as F. G. Meyer photograph number 3889.

Additional citations: ANGOLA: Cuanza Norte: *Welwitsch 5635* [F. G. Meyer photo 3889] (Gz--type of type, N--photo of type).

VITEX GRANDIDIANA Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 404. 1938; H. N. & A. L. Mold., Pl. Life 2: 62. 1948; Mold., Phytologia 15: 245. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 925. 1971.

VITEX GRANDIDIANA var. *ANGUSTIFOLIA* Mold.

Additional bibliography: Mold., Phytologia 15: 245. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 925. 1971.

VITEX GRANDIFOLIA Gürke, Engl. Bot. Jahrb. 18: 169--170. 1894.

Additional synonymy: *Vitex grandifoliola* Gürke ex Adam, Bull. Inst. Fond. Afr. Noire A.32: 1005 & 1018. 1970. *Vitex grandifolia* "Gürke ex Engl." ex Mold., Fifth Summ. 2: 718, in syn. 1971.

Additional & emended bibliography: Gürke, Engl. Bot. Jahrb. 18: 169--170. 1894; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 316 & 324. 1900; A. Chev., Vég. Util. Afr. Trop. Franç. 9: 280--281 & 340--343. 1917; Dalla Torre, Justs Bot. Jahresber. 40 (2): 781. 1917; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 276--277. 1931; Ainslie, Imp. Forest. Inst. Oxford Univ. Inst. Paper 7: 89. 1937; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 403. 1938; Roberty, Pét. Fl. Ouest-Afric. 178--179. 1954; S. & G. Mangelot, Bull. Jard. Bot. Brux. 27: 653. 1957; Irvine, Woody Pl. Ghana 763. 1961; Adjanohoun, Veget. Act. Geobot. 11: 21, 29, & 35, fig. 33. 1962; Gledhill, Check List Flow. Pl. Sierra Leone 30. 1962; Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 445--448. 1963; Grout de Beaufort & Schnell, Contrib. Etud. Pl. Myrmecod. [Mem. Inst. Fond. Afr. Noire 75:] 45--47, pl. 10, fig. D--G. 1966; Mold., Phytologia 16: 502. 1968; Mold., Résumé Suppl. 17: 12. 1968; Bolkhov., Grif, Matvej., & Zakhar., Chromos. Numb. Flow. Pl., imp. 1, 717. 1969; Adam, Bull. Inst. Fond. Afr. Noire

A.32: 1005 & 1018. 1970; Hartwell, Lloydia 34: 388. 1971; Mold., Fifth Summ. 1: 217--221, 223--225, & 374 (1971) and 2: 713, 714, 716, 718, 721, & 925. 1971; Den Outer, Meded. Landbouwhogs. 72-20: 7 & 51. 1972; Farnsworth, Pharmacog. Titles 7 (4): xxvi & 222. 1972; Townsend, Kew Bull. 27: 147--148. 1972; Bolkhov., Grif, Matvej., & Zakhar., Chromos. Numb. Flow. Pl., imp. 2, 717. 1974; [Farnsworth], Pharmacog. Titles 7, Cum. Gen. Ind. [118]. 1975; Jaeger & Mold., Phytologia 30: 403. 1975; Mold., Phytologia 44: 479. 1979.

Additional illustrations: Adjanohoun, Veget. Act. Geobot. 11: 21, fig. 33. 1962; Grout de Beaufort & Schnell, Mem. Inst. Fond. Afr. Noire 75: 47, pl. 10, fig. D--G. 1966.

This species was originally based on *Mann 880* and *Soyaux 215*, as cotypes, not on *Zenker 959* as is sometimes stated. Recent collectors describe the plant as an erect shrub or treelet, 4--5 m. tall, the leaves usually 5-foliolate, opposite, exstipulate, the petioles about 12 cm. long, the leaflets obovate, the middle ones usually 13--40 cm. long and 6--20 cm. wide, apically abruptly acuminate, marginally entire, basally gradually very long-cuneate, the petiolules about 1 cm. long, and the fruit globose, yellow, and edible. The chromosome number is reported as being $2n = 32$. Irvine claims that the species is "common" in deciduous and secondary forests in Ghana. It has recently been collected in flower in January and in fruit in February. The corollas are said by Den Outen (1972) to be yellow. Vernacular names reported for the species are "awama.owama", "bicona", and "evous". Dalla Torre (1917) reports that the leaflets may be galled by a gall-wasp.

Adjanohoun (1962) asserts that *V. grandifolia* grows in association with *Loudetia ambiens* in Ivory Coast. Jaeger & Moldenke (1975) report it from gallery forests at 375 m. altitude in association with *Ficus otoniifolia*, *Xylopia parviflora*, *Pachystela brevipes*, *Baissea zygodioides*, *Aphanostylis mannii*, *Phyllanthus* sp., *Hibiscus comoensis*, *Psychotria calva*, and *Hypolytrum heteromorphum*. Irvine (1930), using the incorrect name, *Vitex grandiflora* Gürke, claims that it is conspecific with *V. cuneata* [now known as *V. doniana* Sweet], citing only *Irvine 89* from Ghana. Hutchinson & Dalziel (1936) describe *V. grandifolia* as "A small tree with glabrous branchlets and subcoriaceous 5-foliolate leaves; flowers 1/2 in. long silky outside, yellowish with brown-purple tips; habitat secondary forest. Casamance and French Guinea to S. Nigeria and Cameroons! Extending to Gabon." Dalziel (1937) states that "The plum-like fruits are yellow when ripe, but later turn black; they have a thin edible pulp and are used at various parts of the coast [of west tropical Africa] to make a spirit said to taste like rum. They are also used like those of *V. Cienkowski* [now called *V. doniana*] to make a sweetmeat. The sapwood is white, the heart darkening to brown, more open-grained than teak, finishing smoothly, said to be durable and termite-proof. Large drums are made from it in S. Nigeria, and the smaller stems are used for house-building. In Sierra Leone the wood is sometimes burned for potash." Hartwell (1971)

reports that the leaves and bark are powdered and mixed with oil and then used by the natives of Nigeria in the treatment of tumours. Chevalier (1917) describes the species as an "Arbre de 25 à 30 mètres de hant, à tronc de 0 m. 60 à 0 m. 90 de diamètre, long de 15 à 20 mètres sans rameaux. Bois blanc grisâtre, avec de jolis reflets, se travaillant bien. Aubier et coeur non différenciés. D. pour 26611 = 0,497 - D. pour 26621 = 0,528. Écorce cendré roussâtre, très pâle, finement écailleuse à la surface, un peu rugueuse, épaisse de 3 à 4 mm....Ce bois est susceptible de remplacer le noyer gris. On l'exporte de la Setté-Cama en Europe.....Peu commun dans la forêt."

Ainslie (1937), in his discussion of *V. grandifolia*, which he calls by the vernacular name of "ori", says that "The bark decoctions of most *Vitex* spp. are used as a stomachic. The root-infusion is a febrifuge. The bark and leaf are powdered and applied to sores, and, mixed with oil, applied to tumours and other swellings. The leaf-decoction is used as a mouth-wash, and the leaf-fomentation in rheumatism, orchitis, &c. The infusion of leaf, bark and root is used for bad toothache, neuralgia, rheumatism and fever. The boiled fruit of *V. cuneata* is drunk as a tea and is said to be very refreshing and to have tonic properties."

Grout de Beaufort & Schnell (1966) describe the myrmecophily of this species: "Dans les spécimens observés (Benoit 132, Cameroun; Chevalier 26621, 33158, 33298, Cameroun) les orifices sont nets, parfois invisibles de l'extérieur, parfois entièrement percés jusqu'à la surface. Ces pores sont soit aux noeuds, soit sur la ligne médiane des entre-noeuds. Il peut aussi exister, en ligne sur l'entre-noeud, des cicatrices non perforées".

Hutchinson & Dalziel (1936) cite Barter 354, 2098, & 2180, Chevalier 14799, 15470, 16508, 17107, 17275, 19091, 19790, & 19819, Dalziel 1247, Farquhar 12, Mann 880, Millen 32, Murphy 676, Rowland s.n., Rumsey 14, Scott Elliot 4327, Talbot 2057, Unwin 47, Vigne 1041, and Winkler 1165 from west tropical Africa. Irvine (1961) cites from Ghana: Green 898, Irvine 89, 1810, & 2208, Kitson 1182, Lyon 2723 & 2869, Murphy 676, Rumsey 14, and Vigne 1041. Fedde & Schuster (1938) cite Buesgen 72a, Ledermann 1135, Mildbraed 5658, Staudt 136, Tessmann B.193, Winkler 1165, Zahn 504, and Zenker 959, 1351, 1893, 1915, 1915a, & 2164 from Cameroons as *V. grandifolia* var. *bipindensis* (Gürke) Pieper.

Material of *V. grandifolia* has been misidentified and distributed in some herbaria as *V. doniana* Sweet, *V. micrantha* Gürke, and *V. "micranthus" Gürke*. On the other hand, the Baldwin 10989, distributed as *V. grandifolia*, actually is *V. doniana* Sweet, while Zenker 2909 is *V. rivularis* Gürke.

Additional citations: REPUBLIC OF GUINEA: Jacques-Georges 27873 (Mu). LIBERIA: Baldwin 10989 (N); Straub 207 (W--946144). IVORY COAST: Bernardi 8159 (E--1828000, Mu, W--2631913). GHANA: Vigne 1041 (W--1526146). CAMEROONS: Zenker 959 (Mu--1830), 1451 (Mu--3713), 1893 (Mu--3773), 1915 (Mu--3772), 1915a (Mu--3775), 2164 (Mu--3911), s.n. [Kamerun] (W--719282).

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 316 & 325. 1900; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Mold., Phytologia 15: 246--247. 1967; Mold., Fifth Summ. 1: 238 & 245 (1971) and 2: 716, 719, & 925. 1971.

Baker (1900) cites only the type collection, *Welwitsch 5759*, from Huíla, Angola, photographed in the British Museum herbarium as Missouri Botanical Garden type photograph number 2997.

Additional citations: ANGOLA: Huíla: *Welwitsch 5759* (Mu--photo of type, W--photo of type).

VITEX GRISEA var. *DEKINDTIANA* (Gurke) Pieper

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; H. N. & A. L. Mold., Pl. Life 2: 55. 1948; Mold., Phytologia 15: 247. 1967; Mold., Fifth Summ. 1: 245 (1971) and 2: 716 & 925. 1971.

VITEX GUERKEANA Hiern

Additional bibliography: Good & Exell, Journ. Bot. Lond. 68: Suppl. 144. 1930; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; H. N. & A. L. Mold., Pl. Life 2: 62. 1948; Mold., Phytologia 16: 502 (1968) and 17: 36. 1968; Mold., Fifth Summ. 1: 245 (1971) and 2: 717, 727, & 925. 1971.

This species is based on *Welwitsch 5632* from Angola, and the type was photographed in the British Museum herbarium as Missouri Botanical Garden type photograph number 2995.

Additional citations: ANGOLA: Cuanza Norte: *Welwitsch 5632* [Mo. Bot. Gard. photo 2995] (Mu--photo of type, W--photo of type).

VITEX GUERKEANA var. *GOSSWEILERI* Pieper

Additional bibliography: Good & Exell, Journ. Bot. Lond. 68: Suppl. 144. 1930; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; H. N. & A. L. Mold., Pl. Life 2: 62. 1948; Mold., Phytologia 15: 247. 1967; Mold., Fifth Summ. 1: 245 (1971) and 2: 716 & 925. 1971.

VITEX GUIANENSIS Mold.

Additional bibliography: Mold., Phytologia 15: 247. 1967; Mold., Fifth Summ. 1: 131 (1971) and 2: 925. 1971.

VITEX HARVEYANA H. H. W. Pearson

Additional bibliography: H. N. & A. L. Mold., Pl. Life 2: 63. 1948; Mold., Phytologia 16: 502. 1968; Mold., Résumé Suppl. 16: 8. 1968; Van der Schijff, Check List Vasc. Pl. Kruger Natl. Park 81. 1969; Mold., Fifth Summ. 1: 249, 252, 255, & 257 (1971) and 2: 727 & 925. 1971; Palmer & Pitman, Trees South. Afr., ed. 2, 3: 1950, 1952, & 1955. 1972; Mold., Phytologia 44: 329 & 492. 1979.

Illustrations: Palmer & Pitman, Trees South. Afr., ed. 2, 3: 1952. 1972.

Palmer & Pitman (1972) reduce *V. geminata* H. H. W. Pearson and *V. schlechteri* Gürke to synonymy here, stating that the latter is said to differ in having its "leaves in whorls of 3 and with un-

toothed leaflets". They assert that *V. harveyana*, in this broad sense, is a dense bushy or scrambling shrub, sometimes with long trailing branches, or a small tree, of the eastern Transvaal low veld, of Zululand, Swaziland, and of northeastern Namibia, "growing in dense bush, sometimes in rocky soil and often along the banks of streams.....The small, silky, oblong buds open into flowers that are white, blue or violet, sometimes 2-toned, and fragrant. They usually bloom from October to December...The fruit, ripe from February to May, is round or somewhat oblong, about 1.3 cm long, with a slightly enlarged calyx. It is said to be edible, but whether by humans is debatable....The specific name commemorates William Henry Harvey, F.R.S., (1811--1866), distinguished Irish algologist and botanist, who was Colonial Treasurer at the Cape of Good Hope and later Professor of Botany at Trinity College, Dublin. He published the first Genera of South African Plants at Cape Town in 1838, and was joint author of volumes 1--3, *Flora Capensis*, 1859--1865."

Recent collectors describe *V. harveyana* as a woody bush, small shrub, or climber, to 8 feet tall, or as a tree to 20 feet tall, and have found it growing on steep wooded slopes, rocky outcrops, and riverbanks, at 500 feet altitude, flowering in November and fruiting in April. The corollas are said to have been "blue" on Moll & Strey 3703 and "purple" on Wells 2173.

Van der Schijff (1969) cites his nos. 873, 1762, 2496, 2586, & 3986, as well as Acocks 16733 and Codd 5114 & 5242, all from Kruger National Park.

Additional citations: SOUTH AFRICA: Natal: Haygarth 7462 (W--550083); Moll & Strey 3703 (W--2559160); Wells 2173 (Mu). Transvaal: Dahlstrand 813 (Go); Rodin 4232 (Ba, W--2063132).

VITEX HARVEYANA f. *GEMINATA* (H. H. W. Pearson) Mold., *Phytologia* 44: 329. 1979.

Synonymy: *Vitex geminata* H. H. W. Pearson in Thiselt.-Dyer, *Fl. Cap.* 5: 213--214. 1901.

Bibliography: H. H. W. Pearson in Thiselt.-Dyer, *Fl. Cap.* 5: 213--214. 1901; Prain, *Ind. Kew. Suppl.* 3: 189. 1908; Pieper, *Engl. Bot. Jahrb.* 62, Beibl. 141 ["142"]: 56 & 82. 1928; Mold., *known Geogr. Distrib. Verbenac.*, ed. 1, 52 & 103 (1942) and ed. 2, 122 & 201. 1949; Mold., *Phytologia* 5: 373 (1956) and 6: 23. 1957; Mold., *Résumé* 154 & 476. 1959; Mold., *Phytologia* 15: 112 & 255. 1967; Mold., *Fifth Summ.* 1: 257 (1971) and 2: 925. 1971; Palmer & Pitman, *Trees South. Afr.* 3: 1951 & 1953. 1972; Mold., *Phytologia* 44: 329 & 492. 1979.

Palmer & Pitman (1972) regard *V. geminata* as a synonym of typical *V. harveyana* H. H. W. Pearson, but in typical *V. harveyana* the leaves are decussate-opposite and the leaflets marginally dentate, while in f. *geminata* the leaves are ternate and the leaflets marginally entire.

The type of the form is Gerrard & McKen 2027, collected along the Umlatusi River in Zululand.

VITEX HAUSKNECHTII Bornm.

Additional bibliography: Bornm., Fl. Nord Syr. [Notizbl. Bot. Gart. Berlin 7:] 25. 1917; H. N. & A. L. Mold., Pl. Life 2: 63. 1948; Parsa, Fl. Iran 4 (1): 540. 1949; Mold., Phytologia 15: 248. 1967; Mold., Fifth Summ. 1: 266 (1971) and 2: 710, 711, 718, & 925. 1971; Mold., Phytologia 25: 244. 1973.

Parsa (1949) says of this species: "Inflorescence plus maigre; branches minces, allongées; calice petit; corolle non exserte; limbe petit; lèvres infér. barbue".

VITEX HAVILANDII Ridl., Kew Bull. Misc. Inf. 1929: 262. 1929.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 404. 1938; H. N. & A. L. Mold., Pl. Life 2: 63. 1948; Mold., Phytologia 15: 248. 1967; Mold., Fifth Summ. 1: 328 (1971) and 2: 925. 1971.

This species is based on *Haviland 861* from Sarawak. Ridley (1929) notes that this species is "allied to *V. tetragona* H. Hal-lier [now known as *Teijsmanniodendron sarawakanum* (H. H. W. Pearson) Kosterm.] which I know only from the description, but the leaves are smaller, not acute at the base nor chartaceous; the calyx is not pubescent and the corolla much smaller."

The *Agama 575*, distributed as *V. havilandii* and so cited by me in a previous installment of these notes, proves actually to be *Teijsmanniodendron smilacifolium* (H. H. W. Pearson) Kosterm.

VITEX HAYNGA Roxb.

Additional bibliography: Voigt, Hort. Suburb. Calc. 469. 1845; C. B. Clarke in Hook. f., Fl. Brit. India 4: 588. 1885; Mold., Phytologia 15: 248. 1967; Mold., Fifth Summ. 1: 279 (1971) and 2: 925 & 970. 1971.

Voigt (1845) lists this plant as cultivated in the Calcutta area. Clarke (1885) comments that it "is probably one of the species described in Fl. Ind., under which Roxburgh has omitted to record the earlier name".

VITEX HEMSLEYI Briq.

Additional & emended bibliography: Sessé & Moc., Pl. Nov. Hisp., ed. 2, 96. 1893; Pittier, Contrib. U. S. Nat. Herb. 20: 483 & 485--486. 1922; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1076. 1932; H. N. & A. L. Mold., Pl. Life 2: 63. 1948; Rzedowski & Mc Vaugh, Contrib. Univ. Mich. Herb. 9: 20 & 107. 1966; Mold., Phytologia 16: 502. 1968; Gibson, Fieldiana Bot. 24 (9): 236. 1970; Mold., Fifth Summ. 1: 77 & 470 (1971) and 2: 715, 720, 724, 767, 768, & 925. 1971; Hinton & Rzedowski, Anal. Esc. Nac. Cienc. Biol. 21: 112. 1975; Mold., Phytologia 34: 252 (1976) and 44: 491. 1979.

Sessé & Mocino's description of *Cornutia pentaphylla* is "*Cornutia foliis quinatis, foliolis lanceolatis.....Arbor quinque orgyas longa. Rami oppositi, tuberculis gemmaceis scabri. Folia opposita, quinata; foliolis lanceolatis, integerrimis, glabris. Racemi corymbosi, ex superioribus foliorum axillis. Bracteae lineares. Flores coerulei, odoratissimi. Stylus vix staminibus longior. Habitat in calidis Novae Hispaniae regionibus. Floret Maio. h*"

Recent collectors describe this species as a small spreading

tree, 5 m. tall, and have found it growing on sea cliffs and in tropical subdeciduous forests, from near sealevel to 750 m. altitudes, flowering in May and June, fruiting in July. The corollas are said to have been "blue and sage-like" on Clark 7188.

The *Harmon* 2481, distributed as *V. hemsleyi*, actually is *Vitex kuylenii* Standl., while *R. V. Moran* 10159 and *Ventura* A. 2469 are *V. pyramidata* B. L. Robinson.

Additional citations: MEXICO: Guerrero: *O. M. Clark* 7188 (E--1287868); *Hinton* 10189 (Ld). Jalisco: *Delgado* S. 351 [R. Hernández 2600] (Mi); *Pérez & Hernández* 859 bis (N). Michoacán: *J. Espinosa* 835 (Ws), 860 (Ws); *Hinton* 13789 (Se--117455, Tu--112021).

VITEX HENRYI Mold.

Additional bibliography: Mold., *Phytologia* 15: 248. 1967; Mold., *Fifth Summ.* 1: 290 (1971) and 2: 925. 1971.

VITEX HEPTAPHYLLA A. L. Juss.

Additional & emended bibliography: D. Dietr., *Syn. Pl.* 3: 611. 1843; Buek, *Gen. Spec. Syn. Candoll.* 3: 501 & 502. 1858; Alain in León & Alain, *Fl. Cuba*, imp. 1, 4: 317 & 318, fig. 137. 1957; Mold., *Phytologia* 16: 502 (1968) and 17: 17, 22, & 23. 1968; Mold., *Fifth Summ.* 1: 98 (1970) and 2: 713, 718, 721, 730, & 925. 1971; Alain in León & Alain, *Fl. Cuba*, imp. 2, 2: 317 & 318, fig. 137. 1974; Mold., *Phytologia* 44: 391. 1979.

Additional & emended illustrations: Alain in León & Alain, *Fl. Cuba*, imp. 1, 317, fig. 137 (1957) and imp. 2, 2: 317, fig. 137. 1974.

Recent collectors describe this plant as a shrub, treelet, or small tree, 5--10 m. tall, the branches spreading, forming a crown, the leaves 3--7-foliolate, and the fruit drupaceous, yellow. They have found it growing in serpentine soil, at altitudes of 100--300 m., flowering in April and May, fruiting in June and July. The Liogiers refer to it as "common on riverbanks" and "common in thickets and woods on serpentine barrens". The corollas are said to have been "blue" on Alain & Jiménez 5680, Jiménez 6172, and Liogier 11479 & 14876.

It should be noted that the *Vitex arborea* accredited to Bréon in the synonymy of *V. heptaphylla* actually is a synonym of *V. beraviensis* var. *acuminata* Mold., while that ascribed to Roxburgh is *V. pinnata* L. and that credited to Desfontaines and to Fischer is *V. negundo* f. *albiflora* Mold.

Additional citations: HISPANIOLA: Dominican Republic: Alain & Jiménez 5680 (W--2577007A); Ekman H.11292 (Ld), H.12643 (Ld); J. J. Jiménez 6172 (N); Jiménez & Liogier 5680 (N); A. Liogier 11265 (Ld, N), 11479 (Ld, N), 14876 (Ld, N), 15717 (N, W--2576808A); Liogier & Jiménez 5680 (Ld); Liogier & Liogier 19340 (N, N); Val-eur 936 (Ld), 972 (Ld, Ld), 1031 (Ld). Haiti: Ekman H.3988 (Ld).

VITEX HIRSUTISSIMA J. G. Baker

Additional bibliography: Mold., *Phytologia* 15: 248--249. 1967; Mold., *Fifth Summ.* 1: 263 (1971) and 2: 925. 1971; Capuron, *Adanson*, ser. 2, 12: 51. 1972

VITEX HOCKEI DeWild.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 252. 1920; Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 232, 238, & 245 (1971) and 2: 716, 727, & 925. 1971.

Recent collectors describe this plant as a shrub, 4 m. tall, and have encountered it on herbaceous savannas, fruiting in April.

Additional citations: ZAIRE: *Callens* 3072 (N), 3300 (N).

VITEX HOLOADENON Dop

Additional synonymy: *Vitex holaodenon* Dop apud Fedde & Schust., Justs Bot. Jahresber. 56 (2): 286, sphalm. 1937.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 56 (2): 286. 1937; Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 303 (1971) and 2: 719 & 925. 1971.

VITEX HOLOCALYX J. G. Baker

Additional & emended bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 316 & 322--323. 1900; Good & Exell, Journ. Bot. Lond. 68: Suppl. 144. 1930; Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 245 (1971) and 2: 722 & 925. 1971.

Baker (1900) cites only the type collection, *Welwitsch* 5636, from Angola. Good & Exell (1930) cite *Welwitsch* 5863, also from Angola.

VITEX HORNEI Hemsl.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 45 (1): 149. 1923; Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 259 (1971) and 2: 728 & 925. 1971.

VITEX HUMBERTI Mold.

Additional bibliography: Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 719 & 925. 1971.

VITEX HUMBERTI var. *ANGUSTATA* Mold.

Additional bibliography: Mold., Phytologia 15: 249. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 925. 1971.

VITEX HYPOLEUCA Schau.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 502. 1858; Mold., Phytologia 15: 249--250. 1967; Mold., Fifth Summ. 1: 179 (1971) and 2: 714, 719, & 925. 1971; Rizzini, Trat. Fitogeog. Bras. 2: 302. 1979.

Belém & Mendes describe this species as a tree, 2 m. tall, the corollas "red", and the immature fruit green in January.

The *Carrick* & *Enoch* JC.255, distributed as *V. hypoleuca*, actually is *V. trifolia* var. *bicolor* (Willd.) Mold.

Additional citations: BRAZIL: Bahia: *Belém* & *Mendes* 297 (N).

VITEX IBARENSIS J. G. Baker

Additional bibliography: Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 263 (1971) and 2: 925. 1971.

VITEX IMPRESSINERVIS Mildbr.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 57 (2): 402. 1938; Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 224 (1971) and 2: 925. 1971.

VITEX INTEGRIFOLIA Urb.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1077. 1932; Ciferri, Mycopath. 7: 89. 1954; Hansford, Sydowia, ser. 2, Beih. 2: 684. 1961; Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 105 (1971) and 2: 925. 1971.

Ciferri (1954) records the fungus, *Irenopsis aciculosa* var. *viticis* (Rehm.) Stev. [*Meliola aciculosa* var. *viticis* Rehm.], from *Vitex integrifolia* on the basis of Ekman 4174 from Hispaniola.

Additional citations: HISPANIOLA: Dominican Republic: Ekman H. 14882 (Ld).

VITEX IRAQUENSIS Mold.

Synonymy: *Vitex iraqensis* Mold. apud Patzak & Rech., Fl. Iran. 43: 6. 1967.

Additional bibliography: Parzak & Rech. in Rech., Fl. Iran. 43: 5, 6, & 8. 1967; Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 267 (1971) and 2: 719 & 926. 1971; Townsend, Kew Bull. 27: 147--148. 1972; Anon., Biol. Abstr. 56 (4): B.A.S.I.C. S.198 & S.280. 1973.

Townsend (1972) is of the opinion that this species cannot possibly be native to Iraq and that the type specimen could not possibly have been collected by Lazar. The type, however, could not be matched in the genus *Vitex* from any part of the world in the Kew herbarium and so "It may well be that *V. iraquensis* will prove to be a good species from the tropics with an exceedingly unfortunate specific epithet."

VITEX IRINGENSIS Gürke

Additional bibliography: Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 238 (1971) and 2: 926. 1971.

VITEX ISOTJENSIS Gibbs

Synonymy: *Vitex isotjensis* Moore ex Mold., Fifth Summ. 1: 719, in syn. 1971. *Vitex isotyensis* Gibbs, in herb.

Additional bibliography: Mold., Phytologia 15: 250. 1967; Mold., Fifth Summ. 1: 247 (1971) and 2: 926. 1971.

The type of this species, Gibbs 236, was photographed in the British Museum herbarium as Missouri Botanical Garden photograph A,859.

Additional citations: ZAMBIA: Gibbs 236 [Mo. Bot. Gard. photo A.859] (Gz--photo of type, N--photo of type). ZIMBABWE: Guy s.n. [Herb. Rhodes. 85928] (Mu).

VITEX KAPIRENSIS DeWild.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 252. 1920; Mold., Phytologia 15: 250--251. 1967; Mold., Fifth

Summ. 1: 232 (1971) and 2: 926. 1971.

VITEX KENIENSIS Turrill

Synonymy: *Vitex kewensis* L. H. & E. Z. Bailey, Hortus Third 1162, in syn. 1976.

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 43: 159. 1922; Wangerin, Justs Bot. Jahresber. 56 (1): 669. 1936; Metcalfe & Chalk, Anat. Dicot. 2: 1036, fig. 248 B. 1950; Dale, Descrip. List Introd. Trees Uganda 70 & 72. 1953; Dale & Greenway, Kenya Trees Shrubs 592, 595, & 596, fig. 109, photo 79 & 80. 1961; Mound, Proc. Ent. Soc. Lond. (A) 38: 178. 1963; Van Zinderen Bakker, Palaeocol. Afr. Surr. Isl. 3: 146. 1967; Mold., Phytologia 16: 502. 1968; Gillett, Numb. Check-list Trees Kenya 47. 1970; Fogg, Newslet. Arb. Barnes Found. 6: 8. 1971; Blasco, Inst. Franç. Pond. Trav. Sec. Scient. Tech. 10: 291 & 426. 1971; Mold., Fifth Summ. 1: 238, 242, & 374 (1971) and 2: 926. 1971; L. H. & E. Z. Bailey, Hortus Third 1162. 1976; Mound & Halsey, Whitefly World 123. 1978; Mold., Phytologia 44: 389. 1979.

Additional illustrations: Metcalfe & Chalk, Anat. Dicot. 2: 1036, fig. 248 B. 1950; Dale & Greenway, Kenya Trees Shrubs 596, fig/ 109, photo 79 & 80. 1961.

Recent collectors describe this plant as a fast-growing timber tree, growing 6 feet per year, attaining a height of up to 160 feet and a trunk girth of 24 1/2 feet, the bark corrugated, the sap colorless, the "leaves in groups of five" [*i.e.*, 5-foliolate], the petioles pubescent, the flowers aromatic, and the fruit edible, and have encountered it in thick forests on "red fossil sandy laterized soil", at 3900 feet altitude, flowering in November. The corollas are said to have been "white" on *Tanner 1119*. Vernacular names reported for the species are "meru oak", "moru", "mouru", "muhuru", and "muuru".

Dale (1953) asserts that "except in the habit of growth it is very difficult to distinguish [this tree] from the indigenous *V. fischeri* Gürke. Tanner reports the fruit "used to add flavor to tobacco snuff" in Tanzania. Dale & Greenway (1961) describe the species as a "Forest tree to 100 ft. with 50 ft. of clear bole; and 6 ft. diam. (usually 3 ft.): Bark thin, rough and slightly fissured: blaze creamy yellow turning dirty green. In its leaves and flowers the species is scarcely distinguishable from *V. fischeri*. Timber pale grey-brown, coarse textured with well-marked growth zones and often with a wavy grain figure: seasons, works and nails well; strength varies with weight (25--37 lb. per cu. ft. air dry) but approximates to that of *Podo*; not durable in the ground. The heart of older trees is often piped; the heartwood has an attractive dark colour. Common in east Mt. Kenya forests; 5,000--6,000 ft. Collections from elsewhere are referable to *V. fischeri* Gürke, and it is doubtful if *V. keniensis* is distinct from that species." Mound (1963) reports that *V. keniensis* is often host to the whitefly, *Bemisia tabaci* (Gennadies) Takahashi.

The *Tanner R.T.2523*, distributed as *V. keniensis*, seems actually to be *V. payos* (Lour.) Merr.

Additional citations: TANZANIA: Tanganyika: *Tanner 1119* (N). KENYA: *Honore 660* (W--1716685).

VITEX KLUGII Mold.

Additional bibliography: Macbr., *Field Mus. Publ. Bot.* 13 (5): 692 & 695. 1960; Mold., *Phytologia* 15: 251. 1967; Mold., *Fifth Summ.* 1: 121, 128, 144, & 179 (1971) and 2: 713, 729, & 926. 1971; López-Palacios, *Revist. Fac. Farm. Univ. Andes* 15: 100, fig. [19]. 1975; Soukup, *Biota* 11: 20. 1976; López-Palacios, *Fl. Venez. Verb.* 582, 610--614, & 654, fig. 142. 1977; López-Palacios, *Revist. Fac. Farm. Univ. Andes* 20: 33. 1979.

Illustrations: López-Palacios, *Revist. Fac. Farm. Univ. Andes* 15: fig. [19]. 1975; López-Palacios, *Fl. Venez. Verb.* [611], fig. 142. 1977.

López-Palacios (1975) comments that "Este *V.* es bastante similar a *V. triflora*, pero sus flores son muy pequeñas y las cimas divaricadas y no 3-floras. Está restringido a la Hilea amazónica. Para Venezuela sólo existe un registro: *Maguire & al.* 42575 del Cerro de la Neblina, T. F. Amazonas". In a personal communication to me he lists the vernacular name, "maporí", from Colombia; others have recorded "conejenumo" and "pale de hambre".

Recent collectors describe the species as a small tree, 8--15 m. tall, the trunk 10--35 cm. in diameter at breast height, and have found it growing in forests on terra firme and in lateritic soil of primary forests, as well as on sandy riverbanks, at 120 m. altitude, in flower from September to December and in February. The corollas are said to have been "bluish" on *Liesner 4100*, "violet-blue" on *Ducke s.n.*, "blue with one white lobe" on *Prance & al. 15004*, and "tube blue, largest lobe blue, the other lobes white or white with blue patches" on *Prance & al. 23050*. *Liesner* reports that the species is used as an appetite stimulant for children.

Castañeda comments that "Eje de la inflorescencia y pedúnculo verdes. Cáliz verde pálido. Tubo de la corola morado-lila en la base y blanco el resto; los 2 pétalos laterales tienen el envés blanco y la haz morado-lila; 2 labios inferiores blancos en ambas caras; pétalo mayor morado-lila en ambas caras. Filamentos di-dínamos, exertos, morado-lila. Ovario verde pálido, globoso."

López-Palacios (1977) cites only the type collection, *Klug 625*, from Peru, and *Maguire & al. 42575* from Amazonas, Venezuela; in his 1979 work he cites *Romero Castañeda 3769* from Vaupés, Colombia.

The *Ducke* collection cited below was previously cited by me as *V. duckei* Huber and may prove to represent a natural hybrid between these two species. Its leaf characters appear to be intermediate.

Additional citations: COLOMBIA: Vaupés: *Romero-Castañeda 3769* (N, N, N). VENEZUELA: Amazonas: *Liesner 4100* (Ld). BRAZIL: Amazonas: *Ducke s.n.* [São Gabriel, Feb. 16, 1936; *Herb. Rio Jan.* 35667] (N); *Prance, Coêlho, & Monteiro 15004* (Ld, N); *Prance, Pennington, Leppard, Monteiro, & Ramos 23050* (Ld, N).

[to be continued]